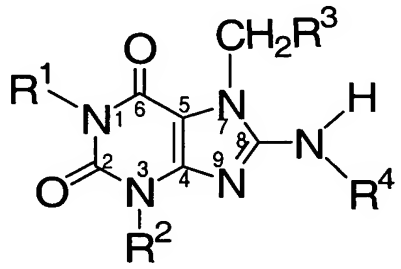
What is claimed is:

1. A compound, including an enantiomer, stereoisomer, rotomer, tautomer and/or prodrug thereof, or a pharmaceutical composition thereof, the compound having the formula (I):

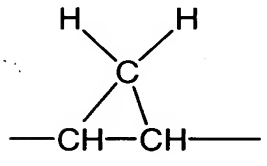


(I)

where,

(a) R^1 and R^2 are, independently of one another, each a C_{1-15} alkyl group, branched or straight chain, with or without one or more substituents, a C_{2-15} alkenyl group, branched or straight chain, with or without one or more substituents, a C_{2-15} alkynyl group, branched or straight chain, with or without one or more substituents, a C_{3-15} cycloalkyl group, with or without one or more substituents, an arylalkyl group, with or without one or more substituents, an aryl group, with or without one or more substituents, a heteroaryl group, with or without one or more substituents, $-OR^5$, $-COOR^5$, $-C(O)R^5$ or $-C(O)N(R^5)_2$, where, R^5 is a hydrogen atom or a hydrocarbon radical, with or without one or more substituents, or one of R^1 and R^2 is a hydrogen atom and the other one of R^1 and R^2 is defined the same as above;

(b) R^3 is an aryl group, with or without one or more substituents, a heteroaryl group, with or without one or more substituents, or a heterocyclic group having 1 to 3 heteroatoms fused to a 5- or 6-membered aryl ring, with or without one or more substituents, with the proviso that R^3 is not an aryl group substituted at its para position with a -Y-aryl group, where, Y is a carbon-carbon single bond, -CO-, -O-, -S-, -N(R^{21})-, -CON(R^{22})-, -N(R^{22})CO-, -OCH_2-, -CH_2O-, -SCH_2-, -CH_2S-, -NHC(R^{23})(R^{24})-, -N$R^{23}$$SO_2$-, -$SO_2NR^{23}$-, -($R^{23}$)($R^{24}$)NH-, -CH=CH-, -CF=CF-, -CH=CF-, -CF=CH-, -CH_2CH_2-, –CF_2CF_2-,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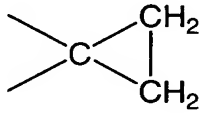
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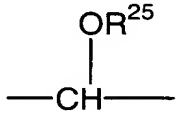
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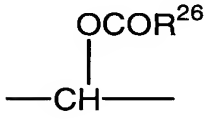
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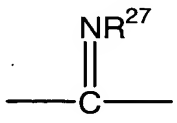
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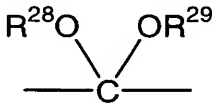

,

where,

R^{21} is a hydrogen atom or a –CO(C_{1-4} alkyl), C_{1-6} alkyl, allyl, C_{3-6} cycloalkyl, phenyl or benzyl group;

R^{22} is a hydrogen atom or a C_{1-6} alkyl group;

R^{23} is a hydrogen atom or a C_{1-5} alkyl, aryl or –CH_2-aryl group;

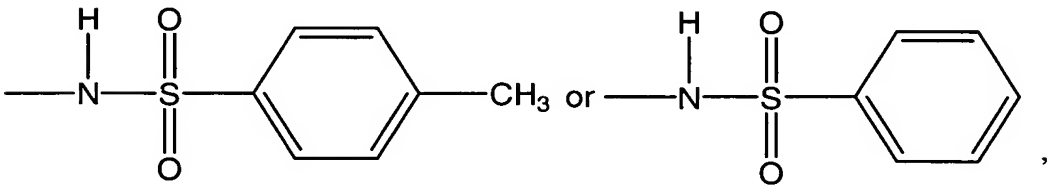
R^{24} is a hydrogen atom or a C_{1-4} alkyl group;

R^{25} is a hydrogen atom or a C_{1-8} alkyl, C_{1-8} perfluoroalkyl,

C_{3-6} cycloalkyl, phenyl or benzyl group;

R^{26} is a hydrogen atom or a C_{1-6} alkyl, C_{3-6} cycloalkyl, phenyl or benzyl group;

R^{27} is $-NR^{23}R^{24}$, $-OR^{24}$, $-NHCONH_2$, $-NHCSNH_2$,



and

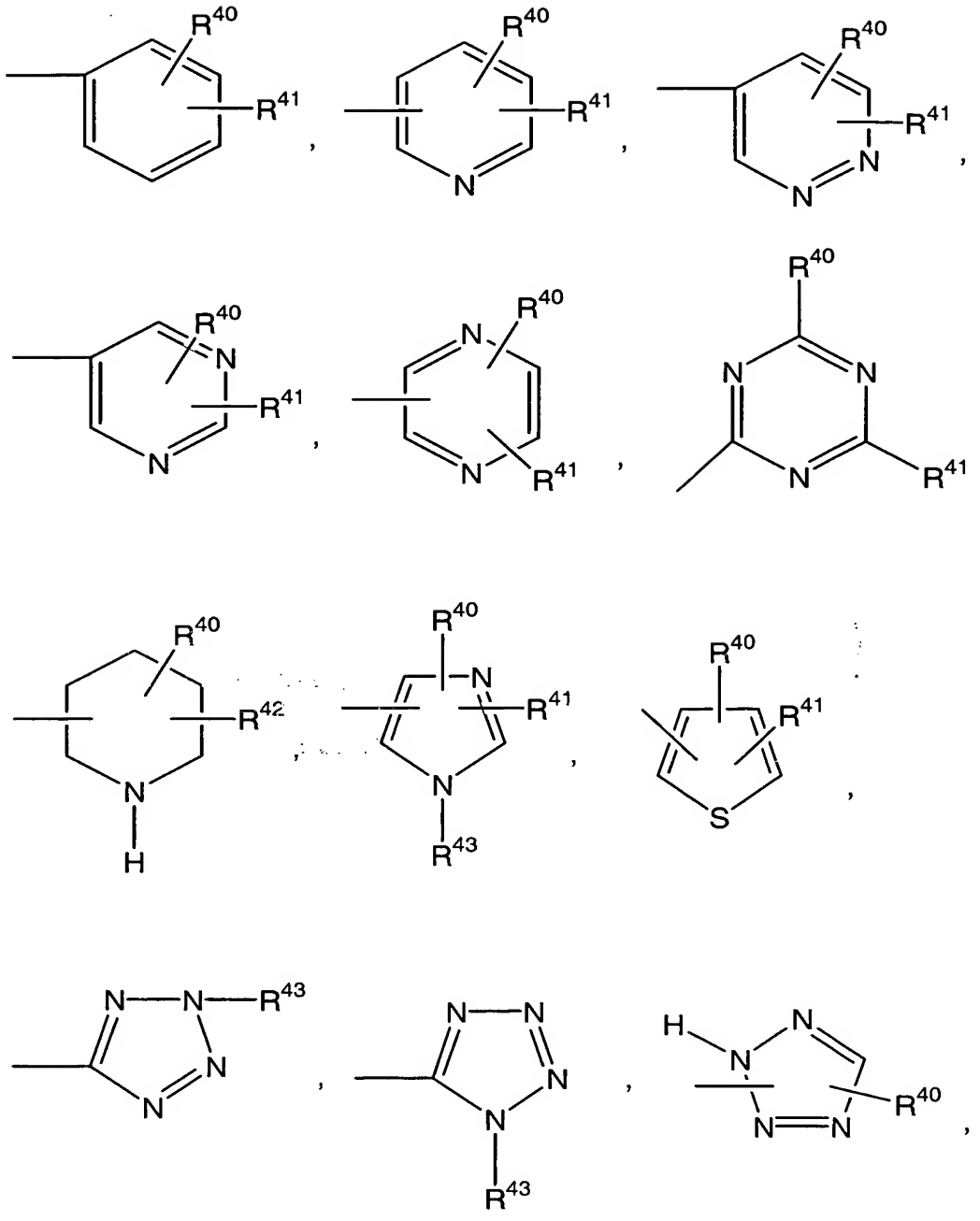
R^{28} and R^{29} are, independently of one another, each a C_{1-4} alkyl group or, taken together with each other, a $-(CH_2)_q$ group, where q is 2 or 3; and

(c) R^4 is a C_{3-15} cycloalkyl group, with or without one or more substituents, a C_{3-15} cycloalkenyl group, with or without one or more substituents, or a heterocycloalkyl group of 3 to 15 members, with or without one or more substituents;

wherein, the one or more substituents for all the groups are chemically-compatible and are, independently of one another, each an: alkyl, cycloalkyl, alkenyl, cycloalkenyl, alkynyl, arylalkyl, alkylaryl, aryl, heteroaryl, heterocycloalkyl, hydroxyalkyl, arylalkyl, aminoalkyl, haloalkyl, thioalkyl, alkylthioalkyl, carboxyalkyl, imidazolylalkyl, indolylalkyl, mono-, di- and trihaloalkyl, mono-, di- and trihaloalkoxy, amino, alkylamino, dialkylamino, alkoxy, hydroxy, halo, nitro, oximino, $-COOR^{50}$, $-COR^{50}$, $-SO_{0-2}R^{50}$, $-SO_2NR^{50}R^{51}$, $NR^{52}SO_2R^{50}$, $=C(R^{50}R^{51})$, $=N-OR^{50}$, $=N-CN$, $=C(halo)_2$, $=S$, $=O$,

-CON($R^{50}R^{51}$), -OCOR^{50}, -OCON($R^{50}R^{51}$), -N(R^{52})CO(R^{50}), -N(R^{52})COOR^{50} or -N(R^{52})CON($R^{50}R^{51}$) group, where:

R^{50}, R^{51} and R^{52} are, independently of one another, each a hydrogen atom or a branched or straight-chain, optionally substituted, C_{1-6} alkyl, C_{3-6} cycloalkyl, C_{4-6} heterocycloalkyl, heteroaryl or aryl group, or R^{50} and R^{51} are joined together to form a carbocyclic or heterocyclic ring system, or R^{50}, R^{51} and R^{52} are, independently of one another, each:



where,

R^{40} and R^{41} are, independently of one another, each a hydrogen atom or a branched or straight-chain, optionally substituted, alkyl, cycloalkyl, heterocycloalkyl, halo, aryl, imidazolylalkyl, indolylalkyl,

heteroaryl, arylalkyl, arylalkoxy, heteroarylalkyl, heteroarylalkoxy, aminoalkyl, haloalkyl, mono-, di- or trihaloalkyl, mono-, di- or trihaloalkoxy, nitro, cyano, alkoxy, hydroxy, amino, phosphino, phosphate, alkylamino, dialkylamino, formyl, alkylthio, trialkylsilyl, alkylsulfonyl, arylsulfonyl, alkylsulfinyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, hydroxyalkyl, morpholino, thioalkyl, alkylthioalkyl, carboxyalkyl, oximino, $-COOR^{50}$, $-COR^{50}$, $-SO_{0-2}R^{50}$, $-SO_2NR^{50}R^{51}$, $-NR^{52}SO_2R^{50}$, $-CON(R^{50}R^{51})$, $-OCON(R^{50}R^{51})$, $-N(R^{52})CO(R^{50})$, $-N(R^{52})COOR^{50}$, $-N(R^{52})CON(R^{50}R^{51})$ or $-OCONR^{50}$ group, where, R^{50}, R^{51} and R^{52} are defined the same as above;

R^{42} is a hydrogen atom or a branched or straight-chain, optionally substituted, alkyl, alkenyl, arylalkyl or acyl group; and

R^{43} is a hydrogen atom or a branched or straight-chain, optionally substituted, alkyl or aryl group;

wherein, the optional substituents are defined the same as above for the one or more substituents.

2. The compound or pharmaceutical composition according to claim 1, where, R^1 is an alkyl or aryl group, with or without the one or more substituents.

3. The compound or pharmaceutical composition according to claim 2, where, R^1 is a methyl, ethyl or benzyl group, with or without the one or more substituents.

4. The compound or pharmaceutical composition according to claim 1, where, R^2 is an alkyl group, with or without the one or more substituents.

5. The compound or pharmaceutical composition according to claim 4, where, R^2 is a methyl, ethyl, iso-butyl or hydroxyethyl group, with or without the one or more substituents.

6. The compound or pharmaceutical composition according to claim 1, where, R^3 is an aryl group, with or without the one or more substituents.

7. The compound or pharmaceutical composition according to claim 6, where, R^3 is a hydroxyaryl, alkoxyaryl or aminosulfonylaryl group, with or without the one or more substituents.

8. The compound or pharmaceutical composition according to claim 7, where, the hydroxyaryl, alkoxyaryl or aminosulfonylaryl group for R^3 is substituted with at least one halogen atom on the aryl ring.

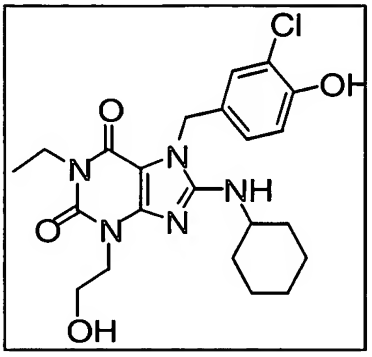
9. The compound or pharmaceutical composition according to claim 1, where, R^4 is a cycloalkyl or heterocycloalkyl group, with or without the one or more substituents.

10. The compound or pharmaceutical composition according to claim 9, where, R^4 is a cyclohexyl, hydroxycyclopentyl or tetrahydropyranyl group, with or without the one or more substituents.

11. The compound or pharmaceutical composition according to claim 1, where, R^1 is a methyl or ethyl group, R^2 is a methyl, ethyl or hydroxyethyl group, R^3 is a 3-chloro-4-hydroxyphenyl, 3-bromo-4-hydroxyphenyl, 3-chloro-4-methoxyphenyl, 3-bromo-4-methoxyphenyl, or 4-aminosulfonylphenyl group and R^4 is a cyclohexyl, tetrahydropyranyl or 2(R)-hydroxy-1(R)-cyclopentyl group.

12. The compound or pharmaceutical composition according to claim 1, where, R^1 is an alkyl or aryl group, with or without the one or more substituents, R^2 is an alkyl group, with or without the one or more substituents, and R^3 is a 4-hydroxyphenyl, 3-chloro-4-hydroxyphenyl, 3-bromo-4-hydroxyphenyl, 4-methoxyphenyl, 3-chloro-4-methoxyphenyl, 3-bromo-4-methoxyphenyl, 4-aminosulfonylphenyl, 3-chloro-4-aminosulfonylphenyl or 3-bromo-4-aminosulfonylphenyl group.

13. The compound or pharmaceutical composition according to claim 1, which is:



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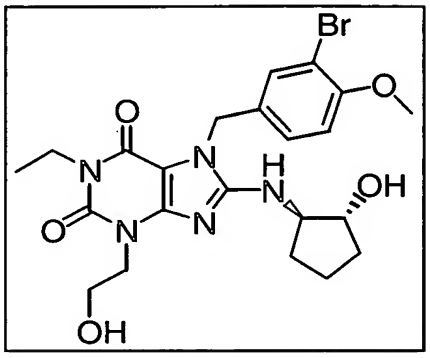

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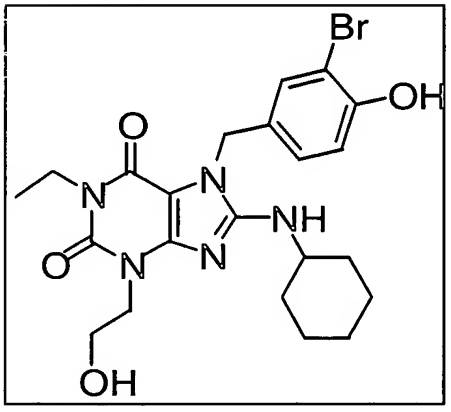

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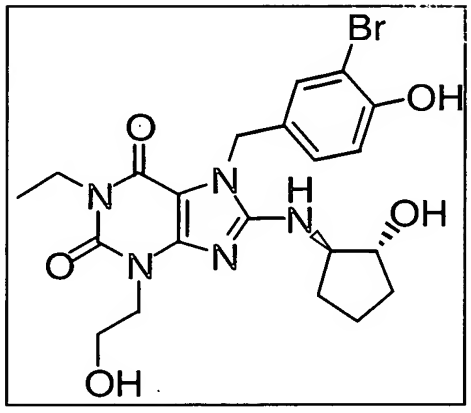

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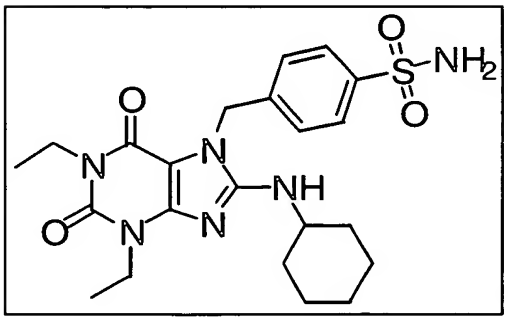

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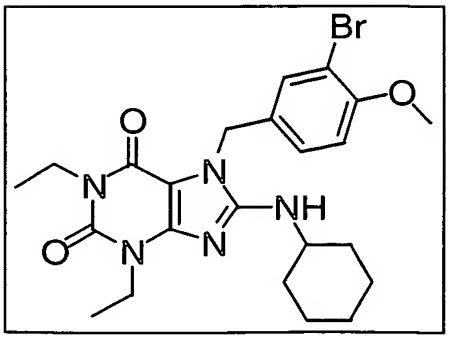

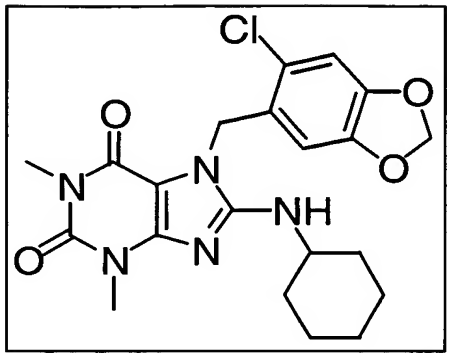

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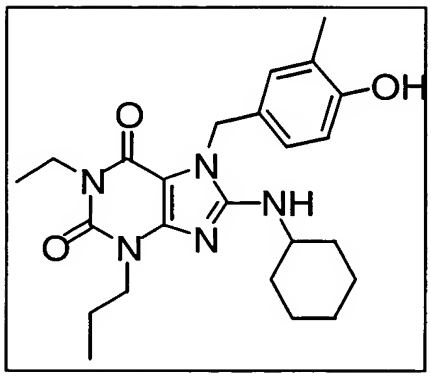

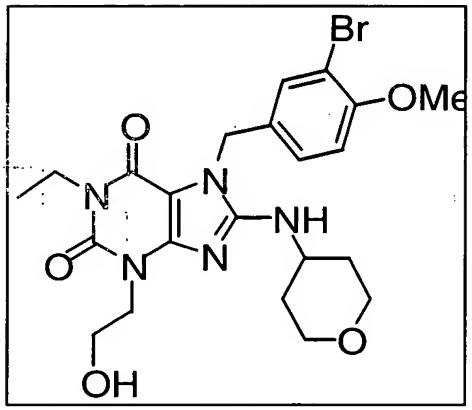

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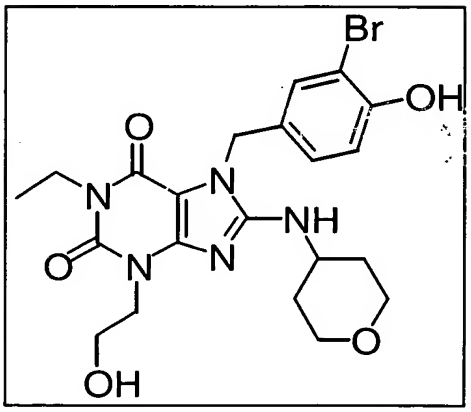
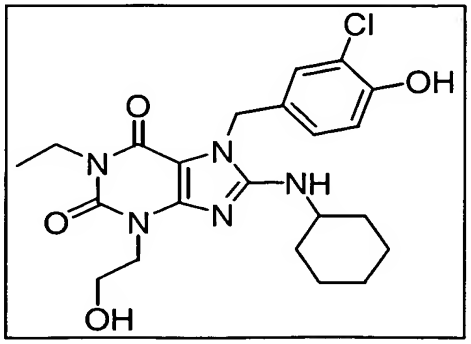
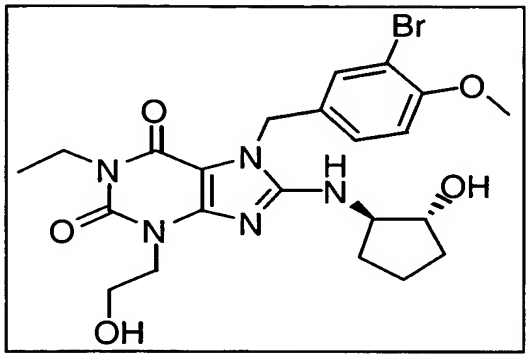


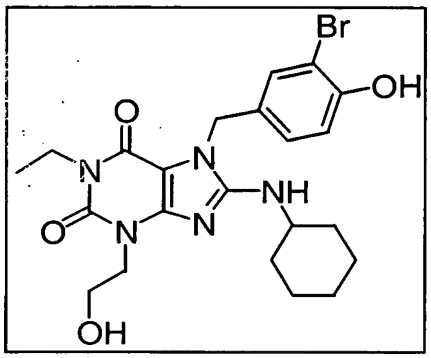
14. The compound or pharmaceutical composition according to claim 1, which is:



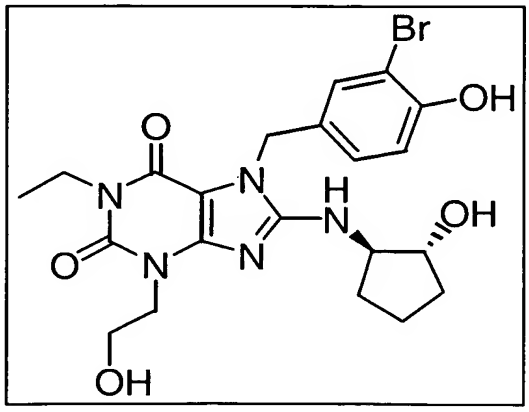
15. The compound or pharmaceutical composition according to claim 1, which is:



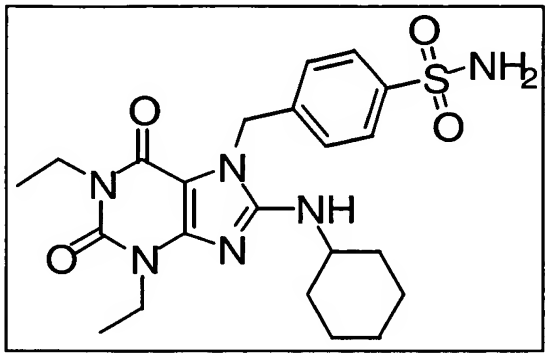
16. The compound or pharmaceutical composition according to claim 1, which is:



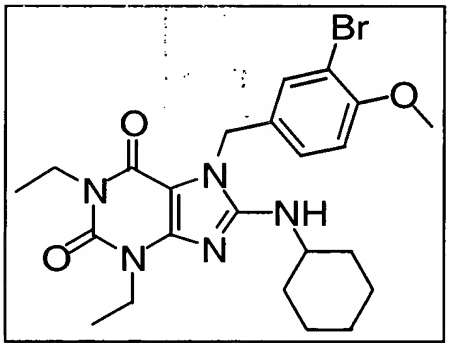
17. The compound or pharmaceutical composition according to claim 1, which is:



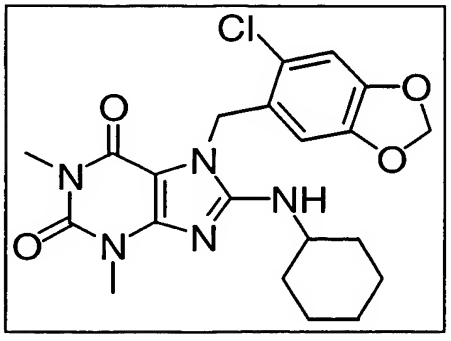
18. The compound or pharmaceutical composition according to claim 1, which is:



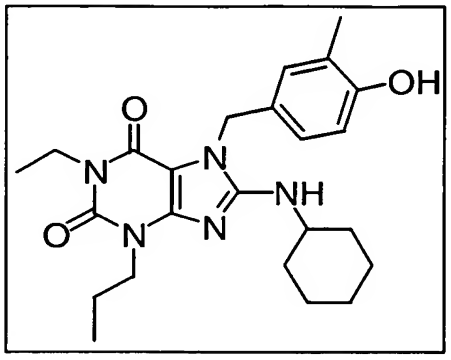
19. The compound or pharmaceutical composition according to claim 1, which is:



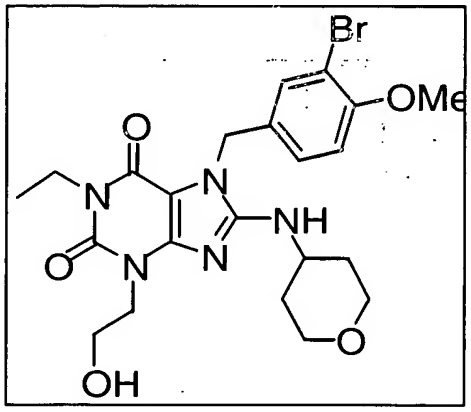
20. The compound or pharmaceutical composition according to claim 1, which is:



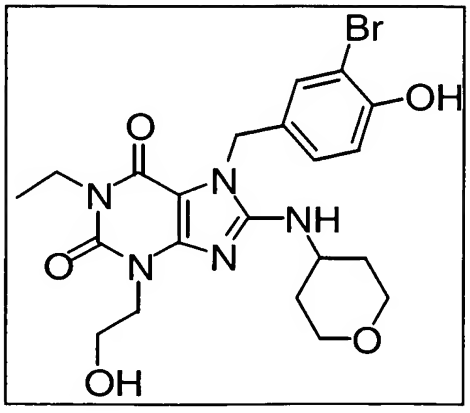
21. The compound or pharmaceutical composition according to claim 1, which is:



22. The compound or pharmaceutical composition according to claim 1, which is:



23. The compound or pharmaceutical composition according to claim 1, which is:

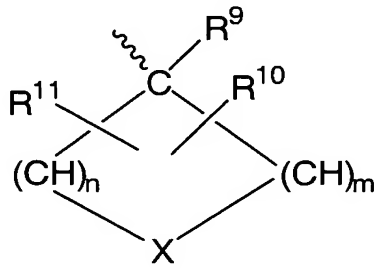


24. The compound or pharmaceutical composition according to claim 1, which has a PDE V IC_{50} within the range of up to about 5 nM.

25. The compound or pharmaceutical composition according to claim 1, which has a ratio of PDE VI IC_{50}/ PDE V IC_{50} of > about 140.

26. The compound or pharmaceutical composition according to claim 1, which has a PDE V IC_{50} within the range of up to about 5 nM and a ratio of PDE VI IC_{50}/ PDE V IC_{50} of > about 140.

27. The compound or pharmaceutical composition according to claim 1, where, R^4 is:



where,

R^1, R^2 and R^3, independently of one another, are each defined the same as above for the compound of formula (I);

R^9 is a hydrogen atom or an optionally substituted, oximino, carboxyalkyl, C_{1-6} alkoxy C_{1-6} alkyl group, aryloxy C_{1-6} alkyl, C_{3-6} cycloalkoxy C_{1-6} alkyl, heteroaryloxy C_{1-6} alkyl, –COOH, ester, C_{1-6}

alkyl, C_{3-6} cycloalkyl, C_{3-6} heterocyclic, hydroxy C_{1-6} alkyl, aryl or heteroaryl group;

R^{10} and R^{11} are substituents on the same or different carbon atoms of the ring and, independently of one another, are each:

(a) defined the same as above for R^9;

(b) a hydroxy group or an ester group derived from a hydroxy group with a (i) C_{1-6} carboxylic acid; (ii) C_{3-6} cycloalkyl C_{1-6} carboxylic acid; (iii) aryl C_{1-6} carboxylic acid; or (iv) heteroaryl C_{1-6} carboxylic acid group; or

(c) a C_{1-6} alkoxy, amino, C_{1-6} mono- or dialkylamino, C_{1-6} alkylacylamino, C_{1-6} alkylsulfonylamino or -NHCON$(R^{14})_2$ group, with or without one or more substituents, where R^{14} is a hydrogen atom or an optionally substituted, alkyl or aryl group, or

R^{10} and R^{11}, taken together with each other and, optionally, with one or more carbon and/or hetero atoms of the ring, form an optionally substituted, spiro- or linearly fused, bi- or tri-cyclic ring system of from 8 to 12 members, including from 0 to 4 hetero atoms;

m and n, independently of one other, are each from 1 to 3; and

X is a chemically-compatible group, which is $-C(R^{10}R^{11})-$, $-S(O)_y$, -O- $-N(R^{60})-$, where:

R^{10} and R^{11} are defined the same as above;

y is from 0 to 2; and

R^{60} is a hydrogen atom or an optionally substituted, C_{1-8} alkyl, C_{1-8} alkynyl, C_{1-8} alkenyl, C_{3-8} cycloalkyl, aryl, heteroaryl, C_{4-8} heterocycloalkyl, COR^{61}, SO_2R^{61}, $COOR^{61}$, $CONR^{61}R^{62}$ or $SO_2NR^{61}R^{62}$ group, where:

R^{61} is a hydrogen atom or an optionally substituted, C_{1-8} alkyl, C_{2-8} alkynyl, C_{2-8} alkenyl, C_{3-8} cycloalkyl, aryl, heteroaryl or C_{4-8} heterocyclic group; and

R^{62} is a hydrogen atom or an optionally substituted, C_{1-8} alkyl, C_{2-8} alkynyl, C_{2-8} alkenyl, C_{3-8} cycloalkyl, aryl, heteroaryl or C_{4-8} heterocyclic group; and

when R^{61} and R^{62} are the same or different alkyl groups, they are, optionally, joined together to form a carbocyclic or heterocyclic ring system;

wherein, the optional substituents are defined the same as for the one or more substituents of formula (I) above.

28. The compound or pharmaceutical composition according to claim 27, where, R^3 is an optionally substituted, hydroxyaryl, alkoxyaryl or aminosulfonylaryl group, wherein, the optional substituents are defined the same as for the one or more substituents of formula (I) above.

29. The compound or pharmaceutical composition according to claim 27, where, R^9 is a hydrogen atom.

30. The compound or pharmaceutical composition according to claim 27, where, one of R^{10} and R^{11} is a hydrogen atom, and the other one of R^{10} and R^{11} is a hydrogen atom or a hydroxy group.

31. A method for treating a physiological disorder, symptom or disease in a patient, comprising administering to the patient an effective amount of the compound or pharmaceutical composition according to claim 1, wherein the physiological disorder, symptom or disease is urogenital, cardiovascular, cerebrovascular, peripheral vascular, angina pectoris, hypertension, restenosis post angioplasty, endarterectomy, stent introduction, cerebral stroke, respiratory tract, allergic associated with atopy, pulmonary hypertension, ischemic heart, impaired glucose tolerance, diabetes and its related complications, insulin resistance syndrome, hyperglycemia, polycystic ovarian syndrome, glomerular, renal insufficiency, nephritis, tubular interstitial, autoimmune, glaucoma, intestinal motility, cachexia or cancer.

32. The method according to claim 31, wherein the physiological disorder is a urogenital disorder.

33. The method according to claim 32, wherein the urogenital disorder is an erectile dysfunction.

34. A method for elevating a cGMP level in a patient in need of the treatment, comprising administering to the patient an effective amount of the compound or pharmaceutical composition according to claim 1.

35. A method for treating an erectile dysfunction in a patient in need of the treatment, comprising administering to the patient an effective amount of at least one of the compound or pharmaceutical composition according to claim 1.

36. The method of claim 35, wherein the patient has been, is being and/or will be treated with a nitrate donating pharmaceutical composition.

37. A method for treating an erectile dysfunction in a patient in need of the treatment, comprising administering to the patient an effective amount of at least one of the compound or pharmaceutical composition according to claim 27.

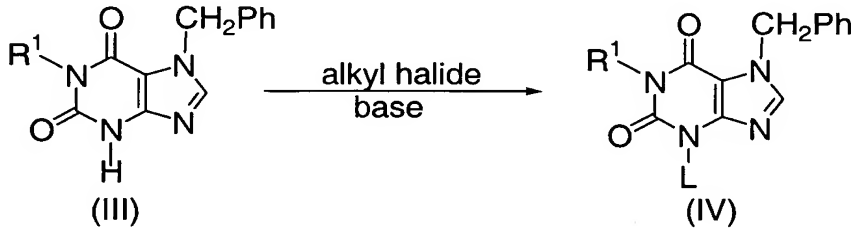
38. The method of claim 37, wherein the patient has been, is being and/or will be treated with a nitrate donating pharmaceutical composition.

39. A method for treating an erectile dysfunction and/or another symptom, disease or disorder in a patient in need of the treatment, comprising administering to the patient a combination therapy, comprising an effective amount of at least one of the compound or pharmaceutical

composition according to claim 1 and at least one compound selected from the group consisting of: a prostanoid, α-adrenergic receptor, dopamine receptor agonist, melanocortin receptor agonist, endothelin receptor antagonist, endothelin converting enzyme inhibitor, angiotensin II receptor antagonist, angiotensin converting enzyme inhibitor, neutral metalloendopeptidase inhibitor, renin inhibitor, serotonin 5-HT_{2c} receptor agonist, nociceptin receptor agonist, rho kinase inhibitor, potassium channel modulator and multidrug resistance protein 5 inhibitor.

40. A method for producing a compound having the formula (I), comprising:

(i) reacting a compound having the formula (III) with an alkyl halide in the presence of a base to form a compound having the formula (IV):



(III) (IV)

where,

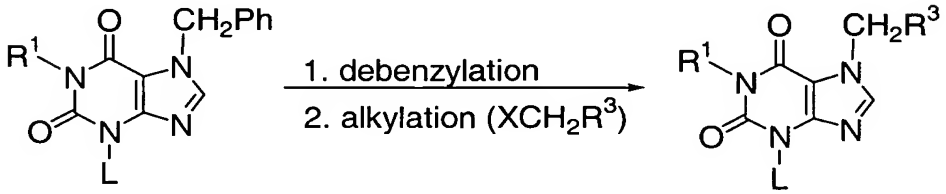
(a) R^1 is a hydrogen atom or a C_{1-15} alkyl group, branched or straight chain, with or without one or more substituents, a C_{2-15} alkenyl group, branched or straight chain, with or without one or more substituents, a C_{2-15} alkynyl group, branched or straight chain,

with or without one or more substituents, a C_{3-15} cycloalkyl group, with or without one or more substituents, an arylalkyl group, with or without one or more substituents, an aryl group, with or without one or more substituents, a heteroaryl group, with or without one or more substituents, $-OR^5$, $-COOR^5$, $-C(O)R^5$ or $-C(O)N(R^5)_2$, where R^5 is a hydrogen atom or a hydrocarbon radical, branched or straight-chain, with or without one or more substituents;

(b) L is R^2 or a protected form of R^2; and

(c) Ph is a phenyl group;

(ii) debenzylating and then alkylating the compound having the formula (IV) with an alkyl halide having the formula XCH_2R^3 to form the compound having the formula (V):



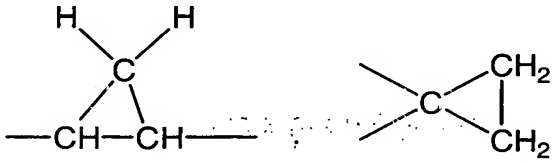
(IV) (V)

where,

X is a halogen atom and

R^3 is an aryl group, with or without one or more substituents, a heteroaryl group, with or without one or more

substituents, or a heterocyclic group having 1 to 3 heteroatoms fused to a 5- or 6-membered aryl ring, with or without one or more substituents, with the proviso that R^3 is not an aryl group substituted at its para position with a -Y-aryl group, where Y is a carbon-carbon single bond, -CO-, -O-, -S-, -N(R^{21})-, -CON(R^{22})-, -N(R^{22})CO-, -OCH_2-, -CH_2O-, -SCH_2-, -CH_2S-, -NHC(R^{23})(R^{24})-, -$NR^{23}SO_2$-, -SO_2NR^{23}-, -C(R^{23})(R^{24})NH-, -CH=CH-, -CF=CF-, -CH=CF-, -CF=CH-, -CH_2CH_2-, –CF_2CF_2-,



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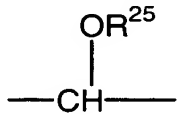

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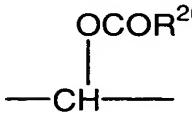

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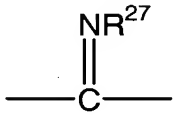
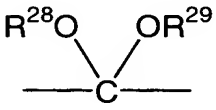


or



,

where,

R^{21} is a hydrogen atom or a –CO(C_{1-4} alkyl), C_{1-6} alkyl, allyl, C_{3-6} cycloalkyl, phenyl or benzyl group;

R^{22} is a hydrogen atom or a C_{1-6} alkyl group;

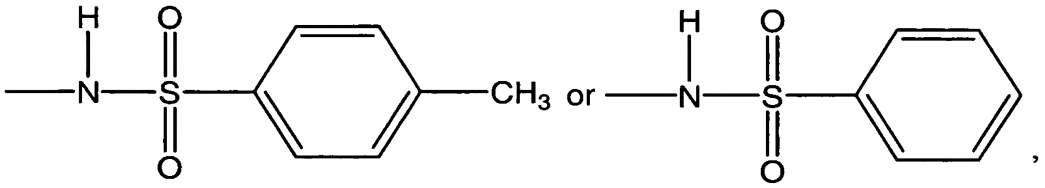
R^{23} is a hydrogen atom or a C_{1-5} alkyl, aryl or –CH_2-aryl group;

R^{24} is a hydrogen atom or a C_{1-4} alkyl group;

R^{25} is a hydrogen atom or a C_{1-8} alkyl, C_{1-8} perfluoroalkyl; C_{3-6} cycloalkyl, phenyl or benzyl group;

R^{26} is a hydrogen atom or a C_{1-6} alkyl, C_{3-6} cycloalkyl, phenyl or benzyl group;

R^{27} is $-NR^{23}R^{24}$, $-OR^{24}$, $-NHCONH_2$, $-NHCSNH_2$,

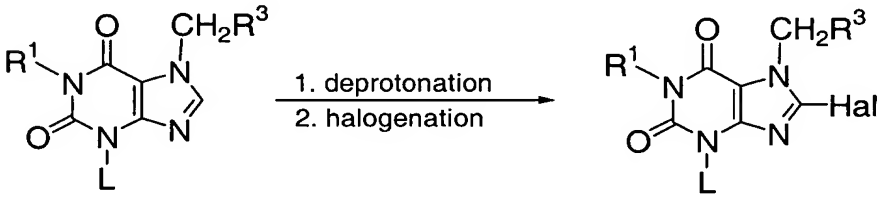


and

R^{28} and R^{29} are, independently of one another, each a C_{1-4} alkyl group, or R^{28} and R^{29}, taken together with each other, are a $-(CH_2)_q$ group, where q is 2 or 3;

wherein, R^{21} through R^{29} are optionally substituted with one or more substituents; and

(iii) deprotonating and then halogenating the compound having the formula (V) to form a compound having the formula (VI):

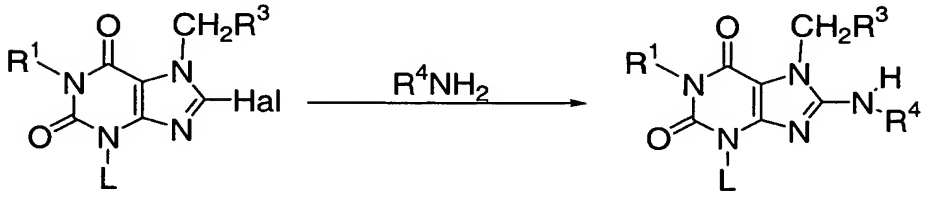


(V) (VI)

where,

Hal is a halogen atom;

(iv) reacting the compound having the formula (VI) with an amine having the formula R^4NH_2 to form a compound having the formula (VII):

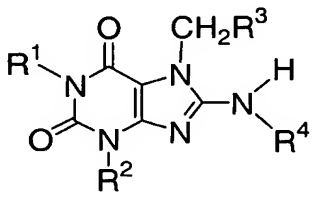


(VI) (VII)

where,

R^4 is a C_{3-15} cycloalkyl group, with or without one or more substituents, a C_{3-15} cycloalkenyl group, with or without one or more substituents, or a heterocycloalkyl group of 3 to 15 members, with or without one or more substituents; and

(v) removing the protecting portion of L, when L is the protected form of R^2, on the compound having the formula (VII) to form the compound having the formula (I):



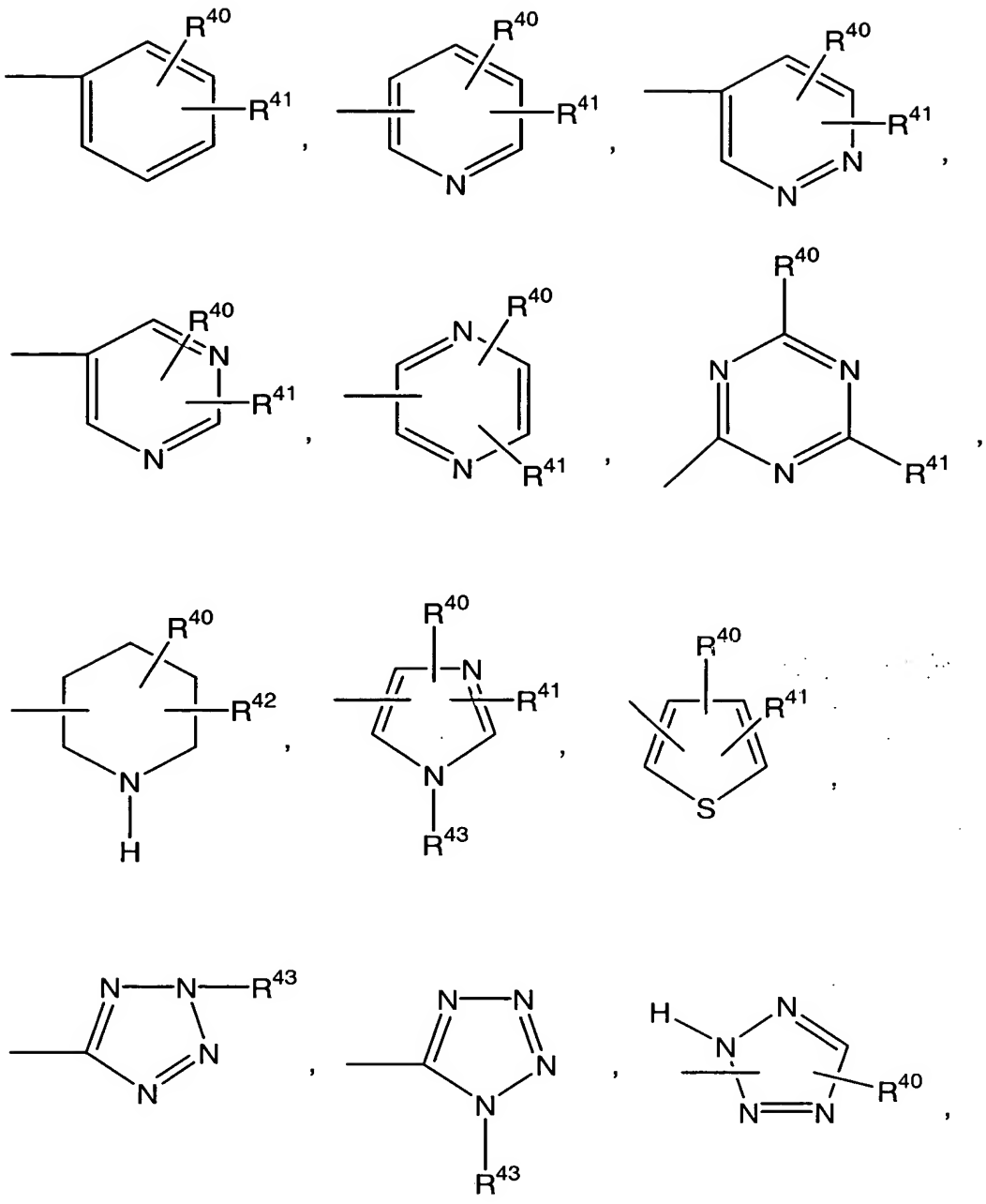
(I)

where,

R^2 is defined the same as R^1 above, with the proviso that at least one of R^1 and R^2 is not a hydrogen atom;

wherein, the one or more substituents for all the groups are chemically-compatible and are, independently of one another, each an: alkyl, cycloalkyl, alkenyl, cycloalkenyl, alkynyl, arylalkyl, alkylaryl, aryl, heteroaryl, heterocycloalkyl, hydroxyalkyl, arylalkyl, aminoalkyl, haloalkyl, thioalkyl, alkylthioalkyl, carboxyalkyl, imidazolylalkyl, indolylalkyl, mono-, di- and trihaloalkyl, mono-, di- and trihaloalkoxy, amino, alkylamino, dialkylamino, alkoxy, hydroxy, halo, nitro, oximino, $-COOR^{50}$, $-COR^{50}$, $-SO_{0-2}R^{50}$, $-SO_2NR^{50}R^{51}$, $NR^{52}SO_2R^{50}$, $=C(R^{50}R^{51})$, $=N-OR^{50}$, $=N-CN$, $=C(halo)_2$, $=S$, $=O$, $-CON(R^{50}R^{51})$, $-OCOR^{50}$, $-OCON(R^{50}R^{51})$, $-N(R^{52})CO(R^{50})$, $-N(R^{52})COOR^{50}$ or $-N(R^{52})CON(R^{50}R^{51})$ group, where:

R^{50}, R^{51} and R^{52} are, independently of one another, each a hydrogen atom or a C_{1-6} alkyl, C_{3-6} cycloalkyl, C_{4-6} heterocycloalkyl, heteroaryl and aryl group, or R^{50} and R^{51} are joined together to form a carbocyclic or heterocyclic ring system, or R^{50}, R^{51} and R^{52} are, independently of one another, each:



where,

R^{40} and R^{41} are, independently of one another, each a hydrogen atom or an alkyl, cycloalkyl, heterocycloalkyl, halo, aryl, imidazolylalkyl, indolylalkyl, heteroaryl, arylalkyl, arylalkoxy, heteroarylalkyl,

heteroarylalkoxy, aminoalkyl, haloalkyl, mono-, di- or trihaloalkyl, mono-, di- or trihaloalkoxy, nitro, cyano, alkoxy, hydroxy, amino, phosphino, phosphate, alkylamino, dialkylamino, formyl, alkylthio, trialkylsilyl, alkylsulfonyl, arylsulfonyl, alkylsulfinyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, hydroxyalkyl, morpholino, thioalkyl, alkylthioalkyl, carboxyalkyl, oximino, $-COOR^{50}$, $-COR^{50}$, $-SO_{0-2}R^{50}$, $-SO_2NR^{50}R^{51}$, $-NR^{52}SO_2R^{50}$, $-CON(R^{50}R^{51})$, $-OCON(R^{50}R^{51})$, $-N(R^{52})CO(R^{50})$, $-N(R^{52})COOR^{50}$, $-N(R^{52})CON(R^{50}R^{51})$ or $-OCONR^{50}$ group, where, R^{50}, R^{51} and R^{52} are defined the same as above;

R^{42} is a hydrogen atom or an alkyl, alkenyl, arylalkyl or acyl group; and

R^{43} is a hydrogen atom or an alkyl or aryl group;

where, R^{40} through R^{43} and R^{50} through R^{52} are, independently of one another, each optionally substituted with any one of the groups defined above for the one or more substituents.